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CONTENTS

	PAGE
ARROW, Gilbert, J., F.Z.S., F.R.E.S. The beetle family RHYSODIDAE, with some new species and a key to those at present known	171–183
INDEX	184–187

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THE BEETLE FAMILY RHYSODIDAE, WITH SOME NEW SPECIES AND A KEY TO THOSE AT PRESENT KNOWN

By Gilbert J. Arrow, F.Z.S., F.R.E.S.

(*British Museum (Natural History)*.)

More than 40 years have passed since, in 1901, *Ann. Mag. nat. Hist.* (7) **7**: 83, I described a number of Oriental species of the genus *Rhysodes*. Two years later, in 1903, *Rev. d'Ent., Caen*, **22**: 85, appeared Grouvelle's important "Synopsis des Rhysodides," which, with the accompanying figure and description of the larva by de Peyerimhoff, brought together everything known concerning this remarkable family of beetles. Grouvelle included in his monograph a key to the species, amounting to 99, omitting only 3 which he did not attempt to place. Unfortunately the rather over-bold attempt to include species which he had not seen led him to misplace or misidentify a few of them, while through insufficient care in the correction of his proofs certain other errors were overlooked which somewhat reduce the usefulness of this part of the work. Since the date of Grouvelle's publication about a dozen species have been added to the list, 5 of them found in Australia and described by Arthur Lea and 7, chiefly from India and Burma, described by Grouvelle himself. Several more are now known to me and, since their identification will be facilitated by their inclusion in a tabular arrangement, it has seemed desirable to reproduce Grouvelle's key in a more compact form, including in it the additional species at present known to me and locating more correctly those found to have been misplaced. The characters used are those selected by him, with the omission of one or two which I have found illusory. Thus, while I am responsible for placing all the forms known to me, those seen by him but not by me remain as placed by him. It has been necessary to omit 13 species, of which a list is given after the key.

While recognising only two genera, *Rhysodes* and *Clinidium*, Grouvelle employed other names similar in form as subgeneric, and in doing so has not escaped some measure of the confusion which seems sooner or later almost inevitably to result from that practice. Subdivisions of genera can be indicated in various ways not liable to any such disadvantage and, in adopting Grouvelle's groups, I have substituted for these names terms with a plural ending in more strict accordance with the Linnean method. The use of two different names for the same insect is thus not possible and no priority problems arise. If, in the future, a more convenient method of subdivision should be devised these terms can be discarded; but subgeneric names, often based on a very few species, remain as stumbling-blocks although the features supposed to be distinctive may prove on completer knowledge to be illusory.

The Rhysodidae constitute one of the most peculiar and isolated families of beetles. They are also undoubtedly a very ancient group, for both the component genera are found throughout the greater part of the world, although, in *Clinidium* at least, the means of dispersal seem to be severely reduced. The species are wingless and their eyes are often so diminished that many must be almost, if not quite, blind. The most obvious characteristic of the family is the corrugation of the upper surface by deep grooves. The occurrence at various points in

these grooves of small orifices appears not to have attracted attention. Such orifices, as elsewhere, are usually surrounded by fine hairs. They are generally to be found near the base of the lateral grooves of the pronotum, as in ENDOMYCHIDAE and other beetles of various groups, another often appears at the base of the median groove and yet another near its anterior end. Another may occur at the back of the head and in *Clinidium* there is probably one upon the mesonotum. The pits are always choked with a yellowish coagulated substance, perhaps of an adhesive character, since fragments of the soft woody substance in which the insects live are often found in the grooves and are only removed with a little difficulty. The secretion is no doubt the equivalent of that exuded by some STAPHYLINIDAE, PSELAPHIDAE and other beetles, which makes them welcome inmates of ants' nests. Association with ants or Termites has not apparently been recorded of any Rhysodid and the secretion may be of an unpleasant, instead of a pleasant, kind and so protective.

The distribution of this little family throughout the world would form a profitable study. Some of the species, such as those of Europe and South Africa, are separated by wide distances from the rest, suggesting the existence, at a remote period of time, of much better means of dispersal than they appear to possess at the present day. The seemingly near relationship, much too great to be explained by mere convergence, between *R. thoreyi* in South Africa and *R. pensus* in New Zealand is not easily explained.

The distinctions between the very closely related and much confused European *R. germari* and North American *R. americanus* and *hamatus* have never been pointed out. Grouvelle attempted to distinguish the males alone but in this he has failed, for all the males have the front femora toothed. The three forms can be recognised, amongst other slight differences, by the rather different conformation of the head in both sexes.

A third genus, *Rhyzodiastes*, not now accepted as distinct from *Clinidium*, was proposed by Fairmaire in 1895. The type-species, *parumcostatus* Fairmaire, was said to inhabit Madagascar, but the features detailed correspond so completely with those of the Brazilian *Clinidium costatum* Guérin that it seems almost certain a specimen of that species was actually described.

The larvae taken at Palembang in Sumatra and described and figured by M. de Peyerimhoff in 1903 were probably those of *Rhysodes malaicus*, which has been found in some numbers in that locality. The species seems to have been incorrectly identified by Grouvelle, being called by him *philippensis* Chevrolat in his key to the species. *R. philippensis*, as described by Chevrolat, has the 2nd and 4th intervals of the elytra elevated and is thereby relegated to a different part of the key from that in which it was placed. To it probably belong specimens taken in the Philippine Is. by Semper, two of which are now in the British Museum. The head is more (not less) elongate than that of *R. malaicus* and the outer discoidal costae of the pronotum are strongly punctured.

Whether certain described forms indicated by Grouvelle in his list of species as possibly not entitled to separation will eventually have to be removed from the list there is still insufficient means of deciding.

In the following tabulation I have for convenience used the term " interval " for the elytral spaces counted from the suture, without omitting the marginal one, as Grouvelle with more exactitude has done.

The species not seen by myself are indicated by the letter (G).

Key to the genera and subdivisions.

1 (8). Eyes lateral, well developed . . . . . *Rhysodes* Dalman.
2 (7). Head deeply grooved above.
3 (6). Eyes large, not very prominent.
4 (5). Median lobe of the head reaching the neck . . . . . Longilobati.
5 (4). Median lobe of the head not reaching the neck . . . . Brevilobati.
6 (3). Eyes small and very prominent . Ocellati (*R. dohertyi* Grouvelle only).
7 (2). Head feebly grooved above . . . . . Consolidati.
8 (1). Eyes dorsal, feebly developed or absent . . . *Clinidium* Kirby.
9 (10). Lateral grooves of the pronotum abbreviated . . . . Brevisulcati.
10 (9). Lateral grooves of the pronotum complete . . . . . Longisulcati.

Key to the species of *Rhysodes* subdiv. Longilobati.

1 (4). Lateral grooves of the pronotum short.
2 (3). Median groove of the pronotum wide . . . . . *sulcatus* F.
3 (2). Median groove of the pronotum narrow . . . . *arcuatus* Chevrolat.
4 (1). Lateral grooves of the pronotum long.
5 (8). Elytra bearing scattered erect setae.
6 (7). Lateral margins of the pronotum conspicuous . . *luscus* Chevrolat.
7 (6). Lateral margins of the pronotum not conspicuous
setosus Grouvelle (G).
8 (5). Elytra without setae.
9 (10). 4th and 5th elytral intervals uniting in a posterior carina
frontalis Grouvelle (G).
10 (9). 4th and 5th elytral intervals not uniting in a posterior carina.
11 (14). Inner costae of the pronotum not abbreviated anteriorly.
12 (13). Elytral punctures as wide as the intervals . . *parvus* Grouvelle (G).
13 (12). Elytral punctures not as wide as the intervals . . . . *comes* Lewis.
14 (11). Inner costae of the pronotum abbreviated anteriorly.
15 (18). Elytra striate.
16 (17). Lateral grooves of the pronotum wide . . . . *abbreviatus* Lea.
17 (16). Lateral grooves of the pronotum not wide . *occipitalis* Grouvelle (G).
18 (15). Elytra seriate-punctate . . . . . *cylindricus* sp. n.

Key to the species of *Rhysodes* subdiv. Brevilobati.

1 (6). Lateral grooves of the pronotum abbreviated.
2 (3). Elytra depressed . . . . . *boysi* Arrow.
3 (2). Elytra very convex.
4 (5). Lateral foveae of the pronotum containing an elevation; abdomen strongly punctured . . . . . *niponensis* Lewis.
5 (4). Lateral foveae of the pronotum without elevation; abdomen sparsely punctured . . . . . *peninsularis* sp. n.
6 (1). Lateral grooves of the pronotum not abbreviated.
7 (20). Posterior cavity of the head small, shutting out the median lobe.
8 (15). Median lobe of head dilated.
9 (10). Pronotum rugosely punctured . . . . . *rugosus* Grouvelle.
10 (9). Pronotum shining.
11 (12). Elytral punctures not as broad as the intervals . . *strabus* Newman.
12 (11). Elytral punctures as broad as the intervals.
13 (14). Inner costae of the pronotum much broader than the outer ones
aterrimus Chevrolat.
14 (13). Inner costae of the pronotum not broader than the outer ones
pilosus Grouvelle.

15 (8). Median lobe of head narrow.
16 (17). Punctures of the elytra much narrower than the intervals *lederi* Lewis.
17 (16). Punctures of the elytra not much narrower than the intervals.
18 (19). Cavity enclosing median lobe of head U-shaped . *subcaviceps* Grouvelle.
19 (18). Cavity enclosing median lobe of head V-shaped . *crassiusculus* Lewis.
20 (7). Posterior cavity of the head enclosing the end of the median lobe.
21 (22). Lateral lobes of the head very broad; posterior pit very small *lineatus* Grouvelle.
22 (21). Lateral lobes of the head less broad; posterior pit not very small.
23 (32). Lateral grooves of the pronotum much wider than the median groove.
24 (27). Antennae, tibiae and tarsi short and thick.
25 (26). Pronotum hexagonal . . . . . *hexagonus* Grouvelle (G).
26 (25). Pronotum cordiform . . . . . *carinatus* Grouvelle.
27 (24). Antennae, tibiae and tarsi more slender.
28 (29). Pronotum much longer than its width . . . *taprobanae* Fairmaire.
29 (28). Pronotum not much longer than its width.
30 (31). Posterior lobes of the head narrowed behind . . . *nilgiriensis* sp. n.
31 (30). Posterior lobes of the head not narrowed behind . *solitarius* sp. n.
32 (23). Lateral grooves of the pronotum not much wider than the median groove.
33 (42). Alternate intervals of the elytra elevated anteriorly.
34 (35). Lateral margins of the pronotum not conspicuous *crenatus* Grouvelle (G).
35 (34). Lateral margins of the pronotum conspicuous.
36 (37). Antennae rather stout . . . . . *oberthuri* Grouvelle (G).
37 (36). Antennae more slender.
38 (39). Lateral lobes of the head narrowed behind . . . *sulcicollis* Lewis.
39 (38). Lateral lobes of the head not narrowed behind.
40 (41). Head broad . . . . . *borneensis* Grouvelle.
41 (40). Head narrow . . . . . *philippensis* Chevrolat.
42 (33). Alternate intervals of the elytra not distinctly elevated.
43 (70). Terminal joint of the antenna pointed.
44 (45). Lateral lobes of the head separated behind by a rectilinear groove. *elegans* Grouvelle (G).
45 (44). Lateral lobes of the head not separated by a rectilinear groove.
46 (49). Punctures of the elytra rather small.
47 (48). Head and pronotum very elongate . . . . . *rostratus* Lewis.
48 (47). Head and pronotum not very elongate . . *blackburni* Grouvelle (G).
49 (46). Punctures of the elytra rather large.
50 (51). Head rugosely punctured . . . . . *figuratus* Germar.
51 (50). Head not rugosely punctured.
52 (53). Head rather narrow . . . . . *grouvellei* Fairmaire.
53 (52). Head moderately broad.
54 (55). Median lobe of the head not interposed between the lateral lobes *africanus* Grouvelle (G).
55 (54). Median lobe of the head interposed between the lateral lobes.
56 (57). Median lobe oval . . . . . *planifrons* Fairmaire (G).
57 (56). Median lobe not oval, rather narrow.
58 (67). Median lobe not interrupted between the antennae.
59 (62). Lateral margin of the pronotum shining, not flat.
60 (61). Metasternum coarsely punctured . . . . *canaliculatus* Castelnau.
61 (60). Metasternum smooth . . . . . *tubericeps* Fairmaire.
62 (59). Lateral margin of the pronotum flat, not shining.
63 (64). Lateral lobes of the head produced behind . . . . *coomani* sp. n.

64 (63). Lateral lobes of the head rounded behind.
65 (66). Head rather long . . . . . *malaicus* Arrow.
66 (65). Head short and broad . . . . . *malabaricus* Arrow.
67 (58). Median lobe of the head interrupted between the antennae.
68 (69). Lateral grooves of the pronotum shorter than the median groove *meridionalis* Grouvelle.
69 (68). Lateral grooves of the pronotum not shorter than the median groove . . . . . *germaini* Grouvelle (G).
70 (43). Last joint of the antenna not pointed.
71 (80). Elytra not striate or only very feebly.
72 (73). Elytra with a triangular basal cavity. . *punctolineatus* Grouvelle (G).
73 (72). Elytra with a transverse basal cavity.
74 (77). Pronotum long, narrowing in front and behind.
75 (76). Head very long, the posterior pit small . . . . *bucculatus* Arrow.
76 (75). Head not very long, posterior pit wide . . . . *cheesmanae* sp. n.
77 (74). Pronotum subquadrate.
78 (79). Hind angles of the head beneath a little produced *pulvinatus* Grouvelle (G).
79 (78). Hind angles of the head beneath not produced . *quadraticollis* Arrow.
80 (71). Elytra deeply striate.
81 (84). Outer costae of the pronotum much narrower than the inner ones.
82 (83). Elytra rather short and broad, with rounded sides . *anguliceps* Arrow.
83 (82). Elytra narrow, parallel-sided . . . . *nicobarensis* Grouvelle (G).
84 (81). Outer costae of the pronotum not much narrower than the inner ones.
85 (94). Intervals of the elytra distinctly broader than the punctures.
86 (89). Elytra scarcely wider than the pronotum.
87 (88). Posterior angles of the head prominent . . . *capito* Grouvelle (G).
88 (87). Posterior angles of the head not prominent *batchianus* Arrow, *intrusus* Grouvelle (G), *humeralis* Grouvelle (G).
89 (86). Elytra distinctly wider than the pronotum.
90 (93). Elytra broader and more convex; median lobe of head broader.
91 (92). Posterior notch of head rather narrow . . . *germari* Ganglbauer.
92 (91). Posterior notch of head wide . . . . . *americanus* Castelnau.
93 (90). Elytra narrow, depressed; median lobe of head narrower *hamatus* Leconte.
94 (85). Intervals of the elytra not broader than the punctures.
95 (96). Median lobe of the head concave . . . . *insularis* Grouvelle (G).
96 (95). Median lobe of the head flat.
97(102). Median lobe of the head broad.
98 (99). Lateral lobes of the head produced behind . . . *lignarius* Olliff.
99 (98). Lateral lobes of the head not produced behind.
100(101). Head long . . . . . *gracilicornis* Grouvelle (G).
101(100). Head as broad as long . . . . . *vicinus* Grouvelle (G).
102 (97). Median lobe of the head narrow.
103(104). Intervals of the elytra much narrower than the punctures *feae* Grouvelle (G).
104(103). Intervals of the elytra wider than the punctures *javanicus* Grouvelle.

Key to the species of *Rhysodes* subdiv. Consolidati.

Lateral grooves of the pronotum reaching the middle; elytra not distinctly punctured . . . . . *thoreyi* Grouvelle.
Lateral grooves of the pronotum not reaching the middle; elytra distinctly punctured . . . . . *pensus* Broun.

Key to the species of *Clinidium* subdiv. Brevisulcati.

1 (2). Intervals of the elytra irregular
quadristriatum Chevrolat (G), *maderiense* Chevrolat (G).
2 (1). Intervals of the elytra regular.
3 (34). Pronotum without a large and deep anterior excavation.
4 (5). Lateral foveae of the pronotum almost reaching the front margin
integrum Grouvelle (G).
5 (4). Lateral foveae of the pronotum far from the front margin.
6 (7). 2nd and 3rd intervals of the elytra united in front
curvicosta Chevrolat (G).
7 (6). 2nd and 3rd intervals of the elytra not united in front.
8 (11). 2nd and 3rd intervals united behind.
9 (10). 1st and 2nd elytral striae not very deep . . . *canaliculatum* Costa.
10 (9). 1st and 2nd elytral striae very deep . . . . *marginicolle* Reitter.
11 (8). 2nd and 3rd intervals not united behind.
12 (15). Lateral foveae of the pronotum reaching the middle.
13 (14). Pronotum long; lateral foveae extending past the middle
pilosum Grouvelle (G).
14 (13). Pronotum shorter; lateral foveae not extending past the middle
oberthuri Grouvelle.
15 (12). Lateral foveae of the pronotum not reaching the middle.
16 (27). Head strongly dilated behind.
17 (22). 3rd and 4th intervals of the elytra not united behind.
18 (19). Median lobe of the head not long . . . . . *veneficum* Lewis.
19 (18). Median lobe of the head long.
20 (21). Pronotum shorter, not very narrow in front . . . *sculptile* Newman.
21 (20). Pronotum long, very narrow in front . . . . *calcaratum* Leconte.
22 (17). 3rd and 4th intervals of the elytra united behind.
23 (26). Median lobe of the head prolonged behind.
24 (25). Pronotum with one outer marginal stria . . . *mexicanum* Chevrolat.
25 (24). Pronotum with two outer marginal striae . . *guatemalenum* Sharp.
26 (23). Median lobe of the head not prolonged behind . *simplex* Chevrolat (G).
27 (16). Head little dilated behind.
28 (31). Lateral foveae of the pronotum less than one-third of its length.
29 (30). Not very slender; 3rd and 4th intervals of the elytra not united behind . . . . . *jamaicense* sp. n.
30 (29). Very slender; 3rd and 4th intervals of the elytra united behind
planum Chevrolat.
31 (28). Lateral foveae of the pronotum more than one-third of its length.
32 (33). Very slender; metasternum incompletely sulcate . *guildingi* Kirby.
33 (32). Not very slender; metasternum completely sulcate . *rojasi* Chevrolat.
34 (3). Pronotum with a large deep anterior excavation.
35 (36). Lateral foveae lightly impressed at the anterior end *cavicolle* Chevrolat.
36 (35). Lateral foveae deeply impressed at the anterior end.
37 (40). Lateral foveae less than one-third the length of the pronotum.
38 (39). Median groove of the pronotum narrow at the base
foveolatum Grouvelle (G).
39 (38). Median groove of the pronotum broader at the base
dubium Grouvelle (G).
40 (37). Lateral foveae more than one-third the length of the pronotum.
41 (44). 3rd and 4th intervals of the elytra united behind.
42 (43). Joints of the antenna loosely connected, spherical *insigne* Grouvelle (G).
43 (42). Joints of the antenna closely connected, transverse
mathani Grouvelle (G).
44 (41). 3rd and 4th intervals of the elytra not united behind.

45 (46). Elytral suture not depressed . . . . . *granatense* Chevrolat.
46 (45). Elytral suture depressed.
47 (48). Elytra hollowed above . . . . . *validum* Grouvelle (G).
48 (47). Elytra flat above . . . . . *centrale* Grouvelle (G).

Key to the species of *Clinidium* subdiv. Longisulcati.

1 (6). Median groove of the pronotum not entire.
2 (3). Median groove of the pronotum effaced in front only . *proprium* Broun.
3 (2). Median groove of the pronotum effaced in front and behind.
4 (5). Median groove of the pronotum well defined in the middle *singulare* Heller (G).
5 (4). Median groove of the pronotum almost completely effaced *montrouzieri* Chevrolat (G).
6 (1). Median groove of the pronotum entire.
7 (12). Median groove narrow, lightly impressed in the middle.
8 (9). Elytra flat on the inner half, bicostate externally . *guineense* Grouvelle.
9 (8). Elytra not flat on the inner half, tri- or quadricostate.
10 (11). Body very narrow, pronotum tapering in front, antennae short and thick . . . . . *bifossulatum* Grouvelle.
11 (10). Body not very narrow, pronotum not tapering in front, antennae not short and thick . . . . . *myopicum* sp. n.
12 (7). Median groove of the pronotum broad, deeply impressed.
13 (14). Median groove strongly dilated behind the middle *fairmairei* Grouvelle (G).
14 (13). Median groove not strongly dilated behind the middle.
15 (30). Median groove not dilated at each end.
16 (27). Elytra not distinctly punctured.
17 (22). Basal cavity of the elytra narrow . . . . . *mishmicum* sp. n.
18 (19). Lateral lobes of the head narrow, converging behind . *gestroi* Grouvelle.
19 (18). Lateral lobes of the head broad, diverging behind.
20 (21). Pronotum narrowly oval . . . . . *waterhousei* Grouvelle.
21 (20). Pronotum subquadrate . . . . . *mishmicum* sp. n.
22 (17). Basal cavity of the elytra wide.
23 (24). Median groove of the pronotum narrowed at the base *spissicorne* Fairmaire.
24 (23). Median groove not narrowed at the base.
25 (26). Outer margins of the pronotum not visible from above *raffrayi* Grouvelle (G).
26 (25). Outer margins of the pronotum visible from above *frater* Grouvelle (G).
27 (16). Elytra distinctly punctured.
28 (29). Lateral lobes of the head broad . . . . . *sulcicolle* Grouvelle.
29 (28). Lateral lobes of the head very narrow . . . . . *costatum* Guérin.
30 (15). Median groove of the pronotum dilated at each end *beccarii* Grouvelle (G).

The following species, unknown to me, have been omitted from the preceding Tables. I have included *Clinidium apertum* Reitter, which does not appear to me to be correctly placed in Grouvelle's Table.

R. arrowi Grouvelle (Sikkim), 1908, *Ann. Soc. ent. Fr.* **77** : 318.
R. alticola Grouvelle (Assam), 1913, *Rec. Indian Mus.* **8** : 99.
R. longiceps Grouvelle (Burma), 1910, *Bull. Soc. ent. Fr.* **1910** : 324.
R. cavifrons Grouvelle (Formosa), 1914, *Arch. Naturges.* **79** (A) (11) : 33.
R. quadriimpressus Grouvelle (Tanganyika), 1910, *Bull. Soc. ent. Fr.* **1910** : 325.

R. ichthyocephalus Lea (Queensland), 1904, *Proc. Linn. Soc. N.S.W.* **29** : 79.
R. mirabilis Lea (Queensland), *op. cit.* : 80.
R. trichosternus Lea (Victoria), *op. cit.* : 81.
R. planatus Lea (Victoria), *op. cit.* : 82.
C. humeridens Chevrolat (Cuba), 1873, *Ann. Soc. ent. Fr.* (5) **3** : 215.
C. chevrolati Reitter (Colombia), 1880, *Verh. Nat. Ver. Brunn* **18** : 30.
C. apertum Reitter (Himalayas), *op. cit.* : 29.
C. rimoganense Miwa (Formosa), 1934, *Trans. nat. Hist. Soc. Formosa* **24** : 256.

Rhysodes cylindricus sp. n.

Black, smooth and shining, moderately elongate and cylindrical. Head not longer than it is wide, the median lobe broad and produced beyond the base, the lateral lobes short and very prominent at the sides, emarginate at the inner edge and separated by a deep excavation from the median lobe. Pronotum quadrate, about as long as wide, bearing four broad smooth costae, separated by grooves which are narrow except in front and behind, the inner costae abbreviated in front, the basal foveae very large, the lateral margins rounded in front, almost parallel behind. Elytra rather broad and convex, bearing rows of rather widely separated punctures, the innermost row joined by a slightly impressed stria, the intervals broad and flat, the 5th interval elevated at the extremity and bordering a deep apical excavation. The metasternum is very smooth except at the sides, the abdominal sternites, impressed on each side, each with a row of punctures, except the last which is irregularly punctured. The antennae are moniliform and bear fairly long but not close hairs, joints 2–5 spherical, 6–10 transverse and the last not acuminate.

♂. The hind tibia is a little produced at the end inwardly.

Length 5·5–7 mm.

Eastern New Guinea : Mt. Tafa, 8500 ft. (*Miss L. E. Cheesman*), Feb., March. Eight specimens were taken.

This appears to be closely related to *R. occipitalis* Grouvelle and, like it, has the median lobe of the head extended far back and overlapping the pronotum, the two inner costae of which are abbreviated in correspondence; but the new form differs conspicuously in being shining black and smooth, the elytra not striate but bearing rows of punctures, neither large nor close together, whilst *R. occipitalis* has broad striae with narrower intervals.

Rhysodes peninsularis sp. n.

Black, smooth, shining, narrow, with moderately long legs and antennae. Head short, broad between the eyes, the median lobe broad in the middle, tapering to a rather sharp point behind and reaching the small circular posterior pit, the lateral lobes broad, not long, rounded behind. Pronotum long and narrow, with the sides gently rounded, the median groove narrow, feebly dilated in front and behind, the lateral foveae not quite reaching the middle of the pronotum, broad and deep behind, without rounded basal elevation. Elytra not very long, narrow and convex, feebly sulcate but with rows of not very large or close punctures, the 2nd row (from suture) terminating in a deep longitudinal excavation behind. Lower surface very smooth, the abdomen bearing a few scattered punctures. Joints 4–10 of the antennae are transverse and the last joint is acuminate.

♂. The front femur bears a strong sharp tooth at its anterior edge and the hind tibiä is a little curved and strongly produced inward at its extremity.

Length 5 mm.

Malay Peninsula : Tanak Rata, Pahang, 4500 ft. (*H. M. Pendlebury*), May. A single specimen.

Grouvelle has recorded examples of the Japanese *R. niponensis* Lewis, from Java, Borneo and Sumatra, as a variety *longior*, which he describes as more elongate than the typical form. The specimen here described is closely similar to *niponensis* but rather less, instead of more, elongate. It differs also in the smooth abdomen, which bears only very sparse punctures, and the absence of the rounded elevation which occupies the basal part of the thoracic foveae in *niponensis*. Like that species, it is a very smooth, rather narrowly cylindrical insect, with slender legs and tarsi.

Rhysodes solitarius sp. n.

Black, smooth and shining, not very slender. The head is moderately elongate, the lateral lobes large, rounded externally, rather wide apart in front and diverging behind at an obtuse angle. The median lobe is moderately wide, parallel-sided and bluntly pointed behind, where it is embraced by a broad excavation. The pronotum is a little longer than wide, the sides evenly rounded, with flat outer margins and four discoidal costae, of which the two inner ones are broader than the outer, tapering at each end and divided by a very narrow groove, the outer grooves broad. The elytra are distinctly broader than the pronotum, gently rounded at the sides, strongly punctured in deep grooves, with the intervals fairly narrow, the 3rd and 5th elevated in the anterior half, the 4th distinctly abbreviated in front and the 2nd, 3rd and 4th behind. The antennal joints are spherical, except the 1st and last, and the last is not sharply pointed.

♂. The front femur is toothed at the inner edge, the middle tibia is sharply produced inwards at the end and the hind tibia strongly but less sharply.

Length 6 mm.

Andaman Is.

R. solitarius is the second species of *Rhysodes* found to occur in the Andaman Islands, the other being the larger and less shining *R. aterrimus* Chevrolat. It has a close resemblance to *R. nilgiriensis*, from which it is easily distinguished by the lateral lobes of the head being rounded instead of narrowly drawn out behind, by the 3rd and 5th intervals of the elytra being distinctly more elevated in front than the rest and the 4th interval abbreviated in front. This alternation of the costae evidently distinguishes it also from *R. nicobarensis* Grouvelle, which is not known to me. The very narrow median groove and wide lateral grooves of the pronotum also preclude its identification with that species.

A single specimen has been in the British Museum since 1876.

Rhysodes nilgiriensis sp. n.

Black, smooth and shining, very convex above and not very long or narrow. Head long and rather narrow, the lateral lobes not broad, rather widely separated in front, almost meeting behind, where they are rather narrowly produced, diverging at an acute angle; the median lobe narrow, parallel-sided, tapering behind and projecting into the broad posterior pit. Pronotum a little longer than wide, with four smooth rounded subequal costae, the lateral grooves much wider than the median one, the sides gently rounded, converging strongly in front but only slightly behind. Elytra deeply sulcate, the intervals narrowly elevated and very shining, the grooves strongly and deeply punctured, the 2nd, 3rd and 4th intervals abbreviated behind and the 5th extended to the suture but not conspicuously thickened. Antennae short but not thick, joints 2–4 spherical, 5–10 transverse and the last not acuminate.

♂. The hind tibiae are rather broadly dilated internally at the end.

Length 5·5–6 mm.

S. India: Nilgiri Hills (*H. L. Andrewes*). Three examples were found.

Like *R. cheesmanae*, to which it bears considerable resemblance, this is a rather short-bodied form. It may be best recognised by the narrowly backward-produced lateral lobes of the head. It differs from *R. cheesmanae* in its narrower head, the more rounded sides of the pronotum and much more deeply sulcate and punctured elytra. It has a superficial resemblance to *R. malabaricus* Arrow, the only known specimen of which was taken in the same region of India. From this it is easily distinguished by its much narrower head, the backwardly produced lateral lobes, very broad outer discoidal grooves of the short pronotum and the shorter and broader elytra.

Rhysodes coomani sp. n.

Black, smooth and shining, convex, not very elongate. Head rather narrow, with the median lobe sagittiform, contracted in front and pointed behind, the lateral lobes not broad, narrowed and produced behind, gently emarginate at the inner edge, the posterior excavation not wide, parallel-sided. Pronotum not much longer than wide, the sides gently rounded, converging in front and behind, the upper surface bearing four smooth, convex, nearly equal and equidistant costae. The elytra are rather short and broad and bear rows of large, very deep and sometimes partly confluent punctures. Each elytron has a deep longitudinal excavation before the extremity. The metasternum bears only a few large scattered punctures and the 2nd, 3rd, 4th and 5th ventral sternites have each a single row, the last also a deep marginal groove. The antennal joints between the 1st and last are transverse but not very broad.

♂. The femur of the front leg has a sharp tooth upon its anterior edge and the hind tibia is dilated internally at the end.

Length 4·5–5·5 mm.

Tonkin: Hoabinh (*A. de Cooman*).

The six specimens of this species are all males. It closely resembles *R. nilgiriensis*, but the median lobe of the head is differently shaped, the grooves of the pronotum are less unequal and the elytra are not sulcate. It also resembles *R. malaicus* Arrow, but is rather smaller and shorter, the head is relatively longer, the lateral lobes being less rounded and more narrowed and produced behind. The median lobe has an arrow-head shape. The four costae of the pronotum are more equal, parallel and equidistant. The sculpture of the elytra is similar in the two species but the punctures in *R. coomani* are larger and less close and numerous. The abdomen is not closely punctured, as in *R. malaicus*, each sternite, except the first, bearing only a single row of punctures. The distinctive features of the male are similar in the two species but the middle tibia of *R. coomani* is not dilated at the end.

Rhysodes cheesmanae sp. n.

Black and shining, not very elongate, with fairly stout legs and antennae. Head broad behind, a little longer than it is wide, with the median lobe moderately long, rather narrowly oval and blunt behind, the lateral lobes not very wide, their inner margins strongly excised, forming a broad excavation behind the median lobe. Pronotum a little longer than it is wide, the sides gently rounded, not much contracted behind, with three entire dorsal grooves, the median one narrow and the lateral ones broad. Elytra not very long, not distinctly striate, bearing longitudinal lines of close and numerous, not very large punctures, the apical part of each elytron deeply excavated. Metasternum smooth, with a few fine scattered punctures. Ventral sternites with very coarse, partly confluent punctures crossing each

transversely, the 3rd sternite with a deep excavation on each side. Legs and antennae short and stout, the latter with the joints, except the 1st and last, transverse, the last joint not acuminate.

♂. The front femur is bluntly toothed in front and the hind tibia is bluntly dilated at the end.

Length 5·5 mm.

Western New Guinea: Sabron, Cyclops Mts., 930 ft. (*Miss L. E. Cheesman*), May. The type is unique.

This species rather nearly resembles *R. bucculatus* Arrow, from Sumbawa I., but it is more stoutly built, with the head, prothorax and elytra all shorter, as well as the legs and antennae. The lateral lobes of the head are less broad and enclose a wide excavation, into which the blunt tip of the median lobe projects. The pronotum is only a little longer than it is wide and the elytral punctures are small but rather more numerous and close together than those of *R. bucculatus*.

Clinidium jamaicense sp. n.

Small, black, smooth and shining, the legs and lower surface sometimes deep red, the body narrow but the hinder part not very elongate, the legs and antennae short. Head narrow, the eyes much reduced and very narrow, the lateral lobes elongate-oval and the median lobe forming a broad-based acute-angled triangle reaching as far as the middle of the eyes. Pronotum oval, nearly twice as long as wide, with curvilinear sides, narrow median groove and very short lateral foveae. Elytra rather short, distinctly wider than the pronotum, narrowly sulcate, with convex costae, the 3rd and 4th (from the suture) not united behind and the 4th defined externally only by a row of punctures. Abdominal sternites deeply grooved at the sides. Antennae closely jointed but not thick.

♂. Middle and hind tibiae dilated at the end, where they form strong tridentate processes.

Length 5–6 mm.

Jamaica: Newcastle (*Dr. M. Cameron*), Aug. Four specimens found in rotting bark.

This species is nearly related to *C. guildingi* Kirby, from St. Vincent, but shows numerous small differences. It is of almost the same size and shape, small and narrow, but the pronotum has a narrower median groove and shorter lateral foveae, the elytral grooves are narrower and the costae broader, the 3rd and 4th not coalescing behind as in *C. guildingi*, and the terminal excavation is rather less deep. The antennae are short but the joints are a little less broad than in the allied form. The femora and the four posterior tibiae have only traces of the white longitudinal lines so conspicuous in *C. guildingi*. *C. humeridens* Chevrolat, from Cuba, appears to resemble the Jamaican species but its elytra are said to have a lateral stria interrupted near the middle.

The type of *C. guildingi* Kirby is in the British Museum, as well as many other specimens of the species, collected in the island of St. Vincent by H. H. Smith. Chevrolat pronounced his *C. planum*, from Guadeloupe, identical with *C. guildingi* but a specimen from Guadeloupe in the British Museum shows that this is not so. It is extremely close to the Jamaican form here described but the median lobe of the head is narrower and the elytra relatively longer and narrower, with the 3rd and 4th intervals, which are completely separated in *C. jamaicense*, united behind, the 2nd interval broader and flatter and the 4th limited externally by a deep groove. The abdominal sternites are deeply grooved, the grooves of the 2nd and 3rd segments extending from side to side and that upon the 3rd arched and approaching the anterior edge of the segment.

In *C. jamaicense* the abdomen is quite smooth in the middle and the grooves are straight and confined to the sides.

Clinidium myopicum sp. n.

Black, very smooth and shining, moderately elongate, with rather stout antennae and legs, the former with joints 2–10 transverse. Lateral lobes of the head oval, rather broad, median lobe triangular, narrowly produced between the lateral lobes and sharply pointed. Pronotum nearly twice as long as it is broad, with the sides almost straight and parallel, scarcely tapering in front, slightly contracted behind, excavated at the front angles and bearing three narrow entire dorsal grooves, the inner interspaces twice as wide as the outer, the median groove a little dilated in front and behind and the lateral grooves each ending in a deep pit at the base. Elytra each with three narrow deep striae, containing scanty and inconspicuous punctures, intervals 1 and 2 from the suture gently convex, 3 subcarinate, incurved at the apex, where there is a deep and wide cavity. Lower surface very smooth, each abdominal sternite with a deep straight lateral groove just behind the front margin, the 4th sternite with a deep lateral cavity and the last with a posterior groove.

♂. The front femur is toothed at its anterior edge and the middle and hind tibiae are produced into curved spiniform processes at the end.

Length 6·5 mm.

Federated Malay States: Pahang, Bukit Lindong, Cameron's Highlands, 5000 ft. (*H. M. Pendlebury*), May. Two specimens.

This closely resembles the Bornean *C. bifossulatum* Grouvelle, but has numerous points of difference. It is less narrow and the antennae and legs are not so thick. The head is less narrow and produced and the eyes are reduced to extremely narrow and probably useless vestiges. The pronotum is more rectangular and less convex, its outer margins not being depressed as in the other species. The legs of the male are less stout, the front femur armed with a sharp tooth, the tarsi are longer and those of the front legs less dilated at the base. In *C. bifossulatum* the lateral grooves of the abdomen are much larger and the trochanters of the front and hind legs are toothed.

Clinidium mishmicum sp. n.

Black, smooth and shining, with the legs deep red, the body broad and compact, with stout legs and thickened tarsi, the antennae fairly long, with joints 2–4 spherical, 5–10 rather transverse and 11 pointed. Head moderately elongate, the lateral lobes broad behind, almost straight at the inner edge, and the median lobe sagittiform, very broad between the antennae and sharply acuminate behind. Pronotum about as wide as the elytra and only a little longer than wide, rounded at the sides and broad at the base, with three entire dorsal grooves, the median groove not broad, scarcely dilated in front, contracted behind, containing an orifice before the middle and another behind it, the inner thoracic costae very broad, scarcely narrowed in front, narrowed but not compressed behind. Elytra unpunctured, each bearing three broad dorsal costae, the innermost abbreviated at the base, producing a deep, rather narrow cavity, the 2nd abbreviated behind and the 3rd curved and thickened at its hinder extremity.

♂. The front femur is toothed at its anterior edge and the middle and hind tibiae are short and produced inward at the end.

Length 7 mm.; max. breadth 2 mm.

Assam: Chauliang, Delai Valley, Mishmi Hills, 4840 ft. (*Miss M. Steele*), December. A single specimen.

Although nearly related to the Burmese *C. waterhousei* Grouvelle, this differs conspicuously from it by its peculiarly broad and compact shape. The lateral lobes of the head are more widely separated and less oval and the median lobe is more produced behind. The median groove of the thorax is less narrow and the inner costae are very broad, narrowed but flat and not compressed at the base. Another Burmese species, *C. fairmairei* Grouvelle, is evidently nearly related to *C. mishmicum* but this also is a more slender insect and the median groove of the pronotum is much broader, with a wide dilatation behind the middle. The Formosan *C. rimoganense* Miwa has, to judge from the figure, an exceedingly close resemblance to *C. waterhousei* Grouvelle.

INDEX

Abacetus, key to spp., 21–28.
Abacetus abor **sp. n.**, 31.
Abacetus artus **sp. n.**, 31.
Abacetus belli **sp. n.**, 29.
Abacetus bidentatus **sp. n.**, 29.
Abacetus blandus **sp. n.**, 33.
Abacetus borealis **sp. n.**, 30.
Abacetus candidus **sp. n.**, 33.
Abacetus carinifer **sp. n.**, 28.
Abacetus compactus **sp. n.**, 29.
Abacetus cycloderus **sp. n.**, 33.
Abacetus dekkanus **sp. n.**, 30.
Abacetus disjunctus **sp. n.**, 33.
Abacetus eous **sp. n.**, 30.
Abacetus guttiger **sp. n.**, 28.
Abacetus impunctus **sp. n.**, 29.
Abacetus luteipes **sp. n.**, 32.
Abacetus niger **sp. n.**, 31.
Abacetus optatus **sp. n.**, 34.
Abacetus semotus **sp. n.**, 31.
Abacetus silvanus **sp. n.**, 28.
Abacetus vitreus **sp. n.**, 32.
abor, Abacetus, 31.
Aciagrion hisopa, 97.
Acridodea, Phylogeny of, 1–15.
Acrophlebia **gen. n.**, 71.
Aëdes (*Aëdimorphus*) *eritreae* **sp. n.**, 165.
Aëdes (*Diceromyia*) *furcifer*, 153.
Aëdes (*Diceromyia*) *taylori*, 153.
Aëdimorphus (see *Aëdes*).
Aeschnopsis **gen. n.**, 77.
aglaja, Argynnis (see *Mesoacidalia charlotta*).
Agriocnemis pygmaea, 97.
albomarginata, Euploea (*Crastia*) *boisduvali*, 132.
Allophaea ochracea, 98.
alluaudi, Chrysomphalus, 35.
alticola, Osorius, 109.
amazonicum, Simulium, 46.
ameria, Mahathala, 120.
amoena, Vestalis, 99.
Anax guttatus, 99.
andamanicus, Cyphericinus, 125.
andromorpha, Colotis evenina sipylus, 53.
angulata, Mahathala ameria, 120.
Anopheles gambiae, 141.
Anotylus (see *Oxytelus*).
antinodalis, Mesophlebia, 63.
apicalis, Euploea (*Vonona*) *honesta*, 128.
Aploderus indicus **sp. n.**, 105.
approximans, Crinorrhinus, 144.
Archibasis melanocyana, 97.
ARCHITHEMISTIDAE nom. emend., 65.
arenosa, Colotis evagore antigone, 56.
Argynnis aglaja (see *Mesoacidalia charlotta*).
ariadeva, Mahathala ameria, 122.
arthuri, Mortonagrion, 97.
artus, Abacetus, 32.
Aspidiotus subterraneus, 36.
assamensis, Osorius, 108.
atrocyana, Onychargia, 98.
aurora, Trithemis, 103.

belli, Abacetus, 29.
bidentatus, Abacetus, 29.
bigamica, Euploea (*Vonona*), 128.
blandus, Abacetus, 33.
Bledius (*Hesperophilus*) *hindustanus* **sp. n.**, 108.
boisduvali, Euploea (*Crastia*), 131.
bolivari, Paracaloptenus, 90.
borealis, Abacetus, 30.
boreus, Mesoacidalia charlotta, 160.
Brachydiplax farinosa, 103.
Brachygonia oculata, 102.
Brachythemis contaminata, 103.
Brodiana **gen. n.**, 13.
Brodiana cubitalis **sp. n.**, 14.
burmana, Mahathala ameria, 122.
burri, Clonia, 59.

cadaverinus, Oxytelus (*Emopotylus*), 106.
Calicnemia rectangulata, 96.
Calliploea (see *Euploea*).
caloptenoides, Paracaloptenus, 89.
Camarota curvinervis (see *C. curvipennis*).
Camarota curvipennis, 141.
candidus, Abacetus, 33.
carinifer, Abacetus, 28.
castigatus, Abacetus, 35.
cataracta, Colotis evagore centigone, 56.
caudata, Clonia, 58.
cerberus, Euploea (*Vonona*), 129.
Ceriagrion cerinorubellum, 97.
cerinorubellum, Ceriagrion, 97.
charlotta, Mesoacidalia, 159.
charlotta, Papilio, 158.
cheesmanae, Rhysodes, 180.
chinensis, Neurobasis, 99.
Chrysomphalus alluaudi, 35.
Chrysomphalus castigatus, 35.
Cladocera (see *Polycladus*).
Cladotelia (see *Polyclada*).
Cladotelia kenyensis **sp. n.**, 164.
clavipes, Simulium, 47.
Climacobasis modesta, 99.
climena, Euploea (*Vonona*), 128.
Clinidium jamaicense **sp. n.**, 181.
Clinidium mishmicum **sp. n.**, 182.
Clinidium myopicum **sp. n.**, 182.
Clonia, revision of, 57; key to spp., 61.
Clonia burri **sp. n.**, 59.
Clonia caudata **sp. n.**, 58.
Clonia kenyana **sp. n.**, 60.
Clonia multispina **sp. n.**, 59.
Clonia turneri **sp. n.**, 60.
Clothoda, 111.
Clothoda urichi, 111.
Clydonophlebia **gen. n.**, 70.
colon, Telicota, 94.
Colotis, notes on, 51–57.

compactus, Abacetus, 29.
constricta, Locustopsis, 12.
contaminata, Brachythemis, 103.
contiguus, Oxytelus (*Anotylus*), 107.
coomani, Rhysodes, 180.
Copera marginipes, 97.
Crastia (see *Euploea*).
Crinorrhinus, key to spp., 143.
Crinorrhinus approximans **sp. n.**, 144.
Crinorrhinus cuprisetis **sp. n.**, 145.
Crinorrhinus griseus **sp. n.**, 145.
Crinorrhinus nebulosus **sp. n.**, 147.
Crinorrhinus sartus **sp. n.**, 146.
Crinorrhinus sparsutus **sp. n.**, 146.
Crocothemis servilia, 103.
cubitalis, Brodiana, 14.
cuprisetis, Crinorrhinus, 145.
curvinervis, Camarota (see *C. curvipennis*).
curvipennis, Camarota, 141.
cycloderus, Abacetus, 33.
cylindricus, Rhysodes, 178.
Cymatophlebiopsis **gen. n.**, 78.
Cyphicerinus, key to spp., 124.
Cyphicerinus andamanicus **sp. n.**, 125.
Cyphicerinus lesnei **sp. n.**, 126.
Cyphicerinus simus **sp. n.**, 125.

danae, Colotis, 53.
dekkanus, Abacetus, 30.
Dialothemis **gen. n.**, 68.
Diamphidia, catalogue of spp., 161.
Diceromyia (see *Aëdes*).
dimidiata, Dysphaea, 99.
Diplacodes trivialis, 103.
disjunctus, Abacetus, 33.
Drepanosticta fontinalis, 96.
Dysphaea dimidiata limbata, 99.

eleutho, Euploea (*Crastia*), 130.
emilia, Papilio, 157.
Emopotylus (see *Oxytelus*).
eous, Abacetus, 30.
ephyia, Colotis, 54.
eris, Colotis, 56.
eritreae, Aëdes (*Aëdimorphus*), 165.
erubescens, Colotis ione, 51.
eucharis, Colotis, 53.
eulimene, Colotis, 57.
Euploea, revision of Melanesian spp., 127–140.
Euploea helcita lauensis **subsp. n.**, 130, 139.
Euploea illudens mathiasana **subsp. n.**, 131.
Euploea nemertes novarum-ebudum **subsp. n.**, 138.
Euploea (*Calliploea*) *pumila manusi* **subsp. n.**, 135.
Euploea (*Calliploea*) *tulliolus goodenoughi* **subsp. n.**, 134.
Euploea (*Salpinx*) *nemertes pulchella* **subsp. n.**, 135.
Euploea (*Vonona*) *cerberus griseitincta* **subsp. n.**, 129.
evagore, Colotis, 54.
evenina, Colotis, 53.
evippe, Colotis, 54.

falsus, Oxytelus (*Emopotylus*), 106.
familiaris, Pseudolasius, 168.
farinosa, Brachydiplax, 103.
fenestrella, Rhinocypha, 98.
festiva, Trithemis, 103.
flavescens, Pantala, 104.
flavipennis, Polyclada, 164.
fluctuans, Neurothemis, 104.
fontinalis, Drepanosticta, 96.
foveifrons, Abacetus, 35.
fraternus, Osorius, 110.
fraudulenta, Euploea (*Crastia*) *boisduvalii*, 131.
fulvia, Neurothemis, 104.
furcifer, Aëdes (*Diceromyia*), 153.

gambiae, Anopheles, 141.
giganteus, Hemerobioides, 65.
glaucum, Orthetrum, 102.
Gomphidictinus **gen. n.**, 99.
Gomphidictinus wheeleri **sp. n.**, 100.
gone, Mahathala ameria, 120.
goodenoughi, Euploea (*Calliploea*) *tulliolus*, 134.
gracilis, Locustopsis, 11.
graeffiana, Euploea (*Salpinx*) *nemertes*, 136.
greeni, Pedrococcus, 79.
griseus, Crinorrhinus, 145.
guianense, Simulium, 47.
guttatus, Anax, 99.
guttiger, Abacetus, 28.

hainani, Mahathala ameria, 121.
hebrus, Murmidius, 42.
helcita, Euploea, 130, 139.
Hemerobioides, 64.
Hesperophilus (see *Bledius*).
hetaera, Colotis, 52.
Heterophlebia, 69.
Heterothemis, 67.
hindustanus, Bledius (*Hesperophilus*), 108.
hisopa, Aciagrion, 97.
honesta, Euploea (*Vonona*), 128.

illudens, Euploea (*Crastia*), 130.
illuminans, Abacetus, 34.
impunctus, Abacetus, 29.
Indictinogomphus melaenops, 99.
indicus, Aploderus, 105.
insignata, Urothemis signata, 104.
intricata, Oligembia, 117.
ione, Colotis, 51.

jamaicense, Clinidium, 181.
javana, Mahathala ameria, 122.

karawajewi, Pseudolasius, 166.
kashmiricus, Oxytelus (*Anotylus*), 107.
kenyana, Clonia, 60.
kenyensis, Cladotelia, 164.
kiangana, Mahathala ameria, 121.

laidlawi, Prodasineura, 96.
lauensis, Euploea helcita, 130, 139.
Lepidosaphes mimusopis, 36.
Lepidosaphes vinsoni, 37.
lesnei, Cyphicerinus, 126.
Liadothemis, 67.
liagore, Colotis, 54.
Liassogomphus, 75.
Libellago lineata, 98.
limbata, Dysphaea dimidiata, 99.
lineata, Libellago, 98.
linnaei, Mesoacidalia charlotta, 159.

Linnean names of Rhopalocera, 91.
LOCUSTOPSIDAE, 1 (for index see p. 15); revision of, 5–7; genera of, 8–15.
Locustopsis constricta **sp. n.**, 12.
Locustopsis gracilis **sp. n.**, 11.
Locustopsis spectabilis **sp. n.**, 8.
Locustopsis uvarovi **sp. n.**, 10.
longicornis, Platystethis, 108.
longipes, Pedrococcus, 83.
longisetosus, Pedrococcus, 84.
lorti, Colotis, 52.
lugubre, Simulium, 48.
luteipes, Abacetus, 32.

Macromia westwoodi, 102.
maculicollis, Polyclada, 162.
maculipennis, Polyclada, 164.
maculosa, Clonia, 57.
magnipunctata, Euploea (*Stictoploea*) *sylvester*, 132.
Mahathala ameria, 120; key to spp., 123.
Mahathala ameria burmana **subsp. n.**, 122.
Mahathala ameria kiangana **subsp. n.**, 121.
Mahathala ameria kiangana umbrina **form. n.**, 121.
malayana, Zygonyx, 103.
mangpuensis, Osorius, 110.
manusi, Euploea (*Calliploea*) *pumila*, 135.
marginipes, Copera, 97.
mashona, Colotis evagore antigone, 55.
masuriensis, Osorius, 109.
mathiassana, Euploea illudens, 131.
mauritianus, Pedrococcus, 81.
mauritiensis, Tylococcus, 37.
melaenops, Indictinogomphus, 99.
melanocyana, Archibasis, 97.
Mesoacidalia charlotta boreas **nom. n.**, 160.
Mesoacidalia charlotta linnaei **nom. n.**, 159.
Mesophlebia antinodalis, 63.
Mimusaspis **gen. n.**, 37.
mimusopis, Lepidosaphes, 36.
minuta, Clonia, 61.
Mioscirtus, 110.
mishmicum, Clinidium, 182.
modesta, Climacobasis, 99.
monticola, Oxytelus (*Anotylus*), 107.
morbosus, Oxytelus (*Anotylus*), 106.
Mortonagrion arthuri **sp. n.**, 97.
muansa, Colotis evagore antigone, 55.
multispina, Clonia, 59.
Murmidius, key to spp., 39.
Murmidius hebrus **sp. n.**, 42.
Murmidius stoicus **sp. n.**, 42.
Murmidius tydeus **sp. n.**, 43.
myopicum, Clinidium, 182.

nebulosus, Crinorrhinus, 147.
Necygomphus **gen. n.**, 75.
nemertes, Euploea (*Salpinx*), 135.
Neurobasis chinensis, 99.
Neurothemis spp., 104.
niger, Abacetus, 31.
nilgiriensis, Rhysodes, 179.
nilus, Colotis pleione, 51.
notostigma, Prodasineura, 96.
novarum-ebudum, Euploea nemertes, 138.
nuba, Colotis evagore antigone, 55.

obscura, Potamarcha, 102.
obsolescens, Rhythemis, 104.
ochracea, Allophaea, 98.
ochraceum, Simulium, 48.
oculata, Brachygonia, 102.
Oligembia intricata **sp. n.**, 117.
Oligotoma, 118.
Oligotoma saundersi, 119.
Onychargia atrocyana, 98.
ops, Colotis v. vesta, 51.
optatus, Abacetus, 34.
ornatipennis, Polyclada, 163.
Orthetrum spp., 102.
Oryctothemis, 67.
Osorius alticola **sp. n.**, 109.
Osorius assamensis **sp. n.**, 108.
Osorius fraternus **sp. n.**, 110.
Osorius mangpuensis **sp. n.**, 110.
Osorius masuriensis **sp. n.**, 109.
Osorius peraffinis **sp. n.**, 109.
Osorius stevensi **sp. n.**, 109.
ovalis, Murmidius, 44.
Oxytelus (*Anotylus*) *contiguus* **sp. n.**, 106.
Oxytelus (*Anotylus*) *kashmiricus* **sp. n.**, 107.
Oxytelus (*Anotylus*) *monticola* **sp. n.**, 107.
Oxytelus (*Anotylus*) *morbosus* **sp. n.**, 106.
Oxytelus (*Emopotylus*) *cadaverinus* **sp. n.**, 106.
Oxytelus (*Emopotylus*) *falsus* **sp. n.**, 106.
Oxytelus (*Tanycraerus*) *proximus* **sp. n.**, 105.

Palaeogomphus **gen. n.**, 76.
Pantala flavescens, 104.
Papilio charlotta, 158.
Papilio emilia, 157.
Paracaloptenus, revision of, 86.
Paracaloptenus bolivari **sp. n.**, 90.
Pararhagadochir, 114.
Pararhagadochir trinitatis, 116.
Pedrococcus **gen. n.**, 79.
Pedrococcus longipes **sp. n.**, 83.
Pedrococcus longisetosus **sp. n.**, 84.
Pedronia, 151.
Pedronia strobilanthis, 149.
peninsularis, Rhysodes, 178.
peraffinis, Osorius, 109.
perampla, Aeschnopsis, 78.
Phthitogomphus **gen. n.**, 77.
phyllis, Rhyothemis, 104.
Plagiophlebis (see *Stauroderus*).
Platystethus longicornis **sp. n.**, 108.
pleione, Colotis, 51.
plutonia, Rhythemis, 104.
Polyclada, catalogue of spp., 162.
Polyclada flavipennis **sp. n.**, 164.
Polyclada maculicollis **sp. n.**, 162.
Polyclada maculipennis **sp. n.**, 164.
Polyclada ornatipennis **sp. n.**, 163.
Polyclada smythi **sp. n.**, 163.
Polycladus, 161.
Potamarcha obscura, 102.
Prodasineura laidlawi, 96.
Prodasineura notostigma, 96.
Proinogomphus **gen. n.**, 76.
proximus, Oxytelus (*Tanycraerus*), 105.
Pseudolasius familiaris, 168.
Pseudolasius karawajewi **sp. n.**, 166.
pulchella, Euploea (*Salpinx*) *nemertes*, 135.
pumila, Euploea (*Calliploea*), 135.
Pycnothemis **gen. n.**, 72.
pygmaea, Agriocnemis, 97.

quadrivittatum, Simulium, 48.

rectangulata, Calicnemia, 96.
regina, Colotis, 52.
Rhabdothemis **gen. n.**, 71.
Rhinocypha fenestrella, 98.
Rhodothemis rufa, 103.
Rhyothemis spp., 104.
Rhysodes, key to spp., 173.
Rhysodes cheesmanae **sp. n.**, 180.
Rhysodes coomani **sp. n.**, 180.
Rhysodes cylindricus **sp. n.**, 178.
Rhysodes nilgiriensis **sp. n.**, 179.
Rhysodes peninsularis **sp. n.**, 178.
Rhysodes solitarius **sp. n.**, 179.
rufa, Rhodothemis, 103.

sabina, Orthetrum, 103.
Salpinx (see *Euploea*).
sartus, Crinorrhinus, 146.
saundersi, Oligotoma, 119.
segretatus, Murmidius, 40.
Selenothemis, 67.
SELENOTHEMISTIDAE nom. emend., 66.
semotus, Abacetus, 31.
servilis, Crocothemis, 103.
signata, Urothemis, 104.
silvanus, Abacetus, 28.
Simulium spp., 46–49.
simus, Cyphicerinus, 125.
sipylus, Colotis evenina, 53.
smythi, Polyclada, 163.
solitarius, Rhysodes, 179.
sparsutus, Crinorrhinus, 146.
spectabilis, Locustopsis, 8.
Stauroderus, 110.
stevensi, Osorius, 109.
Stictoploea (see *Euploea*).
stoicus, Murmidius, 41.
strobilanthis, Pedronia, 149.
subterraneus, Aspidiotus, 36.
sulcatus, Abacetus, 34.
sylvester, Euploea (*Stictoploea*), 132.
Systellothemis **gen. n.**, 69.

Tanycraerus (see *Oxytelus*).
tarsale, Simulium, 48.
taylori, Aëdes (*Diceromyia*), 153.
Telicota colon vaja **subsp. n.**, 94.
Temnostigma **gen. n.**, 72.
tesselata, Clonia, 60.
testaceum, Orthetrum, 102.
Thiopteris (see *Mioscirtus*).
triangulare, Orthetrum, 102.
trinitatis, Pararhagadochir, 116.
Trithemis aurora, 103.
Trithemis festiva, 103.
trivialis, Diplacodes, 103.
tullia, Neurothemis, 104.
tulliolus, Euploea (*Calliploea*), 134.
turneri, Clonia, 60.
tydeus, Murmidius, 43.
Tylococcus mauritiensis, 37.

umbrina, Mahathala ameria kiangana, 121.
urichi, Clothoda, 111.
Urothemis signata insignata, 104.
uvarovi, Locustopsis, 10.

vaja, Telicota colon, 94.
vesta, Colotis, 51.
Vestalis amoena, 99.
vinsoni, Lepidosaphes, 37.
vitreus, Abacetus, 32.
vittata, Clonia, 61.
Vonona (see *Euploea*).

wahlbergi, Clonia, 57.
westwoodi, Macromia, 102.
wheeleri, Drepanosticta fontinalis, 96.

Zygonyx malayana, 103.

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